BREVIORA

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THREE NEW SPECIES OF *MANGORA* (ARANEAE, ARGIOPIDAE) FROM CENTRAL AMERICA

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In my paper dealing with the genus *Mangora* in Panama (1954) I recognized eight species then known to exist in that country. This conclusion involved the recognition and description of three new species together with the establishment of considerable new synonymy.

During my collecting trips back to the Panana Canal Zone and parts of Panama outside of the Canal Zone in 1954 and 1957-1958 a considerable number of specimens belonging to this genus were taken but no new species were found among these. I have also had the opportunity to study all of the *Mangora* collections from Central America now in the Museum of Comparative Zoology at Harvard College. Some of this material has only recently been sorted out of general collections which have been awaiting attention for many years. From all of this material I have been able to separate out what I believe to be representatives of three new species. These are described in this paper in accord with my usual formula.

If recently established new synonymy is taken into consideration together with the new species recognized in this paper, the complete list of species in the genus *Mangora* O. P.-Cambridge, 1889, now definitely known from Central America, may be given as follows: *M. bimaculata* (O. P.-Cambridge); *M. calcarifera* F. P.-Cambridge; *M. candida* Chickering; *M. conspicua* sp. nov.; *M. distincta* sp. nov.; *M. mobilis* (O. P.-Cambridge); *M. montana* Chickering; *M. passiva* (O. P.-Cambridge); *M. pia* Chamberlin and Ivie; *M. picta* O. P.-Cambridge; *M. schnierlai* Chickering; *M. spinula* F. P.-Cambridge; *M. sufflava* sp. nov.; *M. trilineata* O. P.-Cambridge. Banks (1898) reported *M. gibberosa* (Hentz) from Lower California. I have not been able to examine these specimens but I regard it as highly unlikely that the species exists in that part of Central America and, for this reason, the species is not included in the list given above. Kraus (1955) reported *M. gibberosa* (Hentz) from El Salvador. Again, I think there is serious question regarding the validity of this identification. I am rather strongly inclined to believe it belongs to the species which I am regarding as *M. conspicua* sp. nov. but, in view of the uncertainty, I am omitting it from my list. Only males are known for *M. distincta* sp. nov., *M. picta* O. P.-Cambridge, and *M. sufflava* sp. nov. Only females are known for *M. passiva* (O. P.-Cambridge), *M. schnierlai* Chickering, and *M. trilineata* O. P.-Cambridge.

All types established in this paper together with my entire collection of Araneae are deposited in the Museum of Comparative Zoology at Harvard College.

Genus MANGORA O. P.-Cambridge, 1889

MANGORA CONSPICUA sp. nov.

(Figures 1-7)

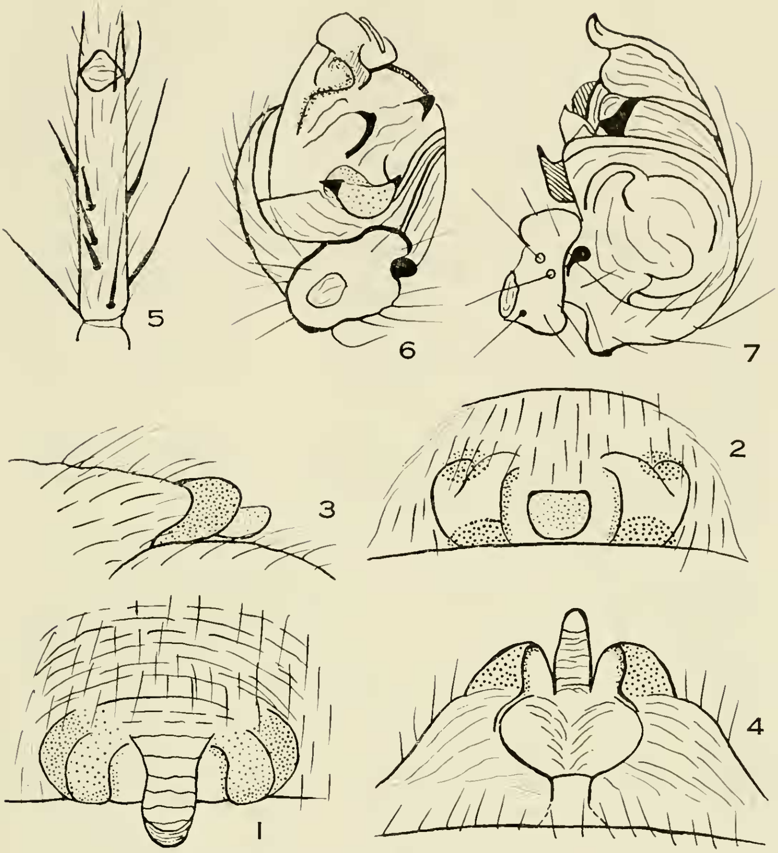
Female holotype. Total length 3.77 mm. Carapace 1.408 mm. long; .99 mm. wide opposite interval between second and third coxae where it is widest; .66 mm. tall at level of greatest width and, therefore, two-thirds as tall as wide; median fovea a narrow, longitudinal groove.

Eyes. Eight in two rows as usual. LE on very slightly raised tubercles; AME protrude somewhat over clypeus. Viewed from above, anterior row strongly recurved, posterior row slightly so. Viewed from in front, posterior row procurved, anterior row recurved, all measured by centers. Central ocular quadrangle wider in front than behind in ratio of about 20 : 17; slightly longer than wide in front. Ratio of eyes AME : ALE : PME : PLE = 8 : 5.5 : 6.5 : 6. AME separated from one another by about 1.25 times their diameter, from ALE by slightly less than that distance. PME separated from one another by about ten-thirteenths of their diameter, from PLE by eleven-thirteenths of their diameter. Height of clypeus equal to about the radius of AME.

Chelicerae. Typical of the genus. Promargin of the fang groove apparently with three teeth; retromargin apparently with only two.

Maxillae and *Lip.* Typical of the genus; with details regarded as unnoteworthy.

Sternum. Quite convex; longer than wide in ratio of about 13 : 11; sternal suture strongly procurved; not directly continued between fourth coxae but a sclerite is present there; fourth coxae separated by nearly two-thirds of their width.



External Anatomy of *Mangora*
Figures 1-7, *M. conspicua*

Figs. 1-3. Epigynum from below, in posterior view, and in profile from right side, respectively.

Fig. 4. Epigynum from a paratype, turned forward to reveal the dorsal surface.

Fig. 5. Left second tibia of male allotype, showing ventral spines.

Figs. 6-7. Two views of the male palpal tibia and tarsus.

Legs. 1423. Width of first patella at "knee" .217 mm., tibial index of first leg 15. Width of fourth patella at "knee" .227 mm., tibial index of fourth leg 16.

(All measurements in mm.)

	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Totals
1.	1.474	.440	1.050	1.320	.638	4.922
2.	1.350	.440	.924	1.166	.610	4.490
3.	.748	.330	.528	.638	.438	2.682
4.	1.474	.450	.968	1.122	.550	4.564

All legs with fairly robust spines. The long, branched hairs on the third tibiae appear to be arranged in two oblique rows of five and four, respectively, but short trichobothria are closely contiguous. Tarsal and palpal claws appear as usual in the genus.

Abdomen. 2.795 mm. long; 1.826 mm. wide; ovoid; with attachment to cephalothorax only slightly anterior to middle; otherwise as usual in the genus.

Epigynum. General pattern resembles that of *M. mobilis* (O. P.-Cambridge) and *M. passiva* (O. P.-Cambridge) but the central tongue is longer than in either of these species and other differences are also visible. Features as shown in Figures 1-4.

Color in alcohol. This is a very clearly marked species and all three females available are remarkably consistent in their color pattern. Carapace yellowish with a narrow, median, black stripe reaching from just behind PME through the median groove where it is extremely narrow; there is a marginal stripe beginning a little behind PLE and extending to about opposite the second coxae where it widens and continues nearly to the posterior border as a gray area. The sternum is dark brown with a light spot in the middle just behind the sternal suture. The legs are basically yellowish but are rather conspicuously spotted because each spine is surrounded at its base by a small black dot. The first and second femora each have a ventral black dot on the membrane at the joint between the trochanter and the femur, then an irregular black stripe reaches nearly to the distal end where there is a curved black band; there is also an indistinct gray stripe on both of these femora just prolateral to the black stripe. The gray stripe is lacking on some paratypes but the fourth femur has a dark, gray, retrolateral stripe extending through the middle of the segment. The abdomen is also conspicuously colored by numerous small white flecks and dark brown or black stripes. Beginning about one-third from the base there is a narrow median, brownish stripe and on each side of this there is an irregular black stripe. White dominates the whole dorsum except for these stripes. The lateral sides each have four narrow, irregular, dark brown or black, oblique stripes extending to the venter. The latter part is yellowish anterior to the epigynum;

behind the epigynum there is a broad, median stripe with a group of white flecks on each side. There are also three small, white spots on each side of the group of spinnerets.

Allotype male. Three males apparently belonging to this species are in the collection but they are all defective for one reason or another. For this reason the female has been chosen as the holotype and a male with normal palps as the allotype. The abdomen of the allotype male was crushed and of little value. Total length of a paratype male 2.134 mm. Carapace of allotype male 1.122 mm. long; .718 mm. wide opposite interval between second and third coxae where it is widest; about .44 mm. tall. Otherwise essentially as in female.

Eyes. Essentially as in female; details regarded as unnoteworthy.

Chelicerae. Difficult to see teeth along fang groove; apparently the number is the same as in female.

Maxillae, Lip, and *Sternum.* Each maxilla has a tooth which is in apparent opposition to a chitinized tubercle on the palpal femur; otherwise these structures are essentially as in female.

Legs. 1243. Width of first patella at "knee" .162 mm., tibial index of first leg 13. Width of fourth patella at "knee" .152 mm., tibial index of fourth leg 15.

	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Totals
		(All measurements in mm.)				
1.	1.232	.418	.880	1.056	.594	4.180
2.	1.056	.360	.682	.990	.550	3.638
3.	.638	.242	.396	.506	.374	2.156
4.	1.034	.330	.704	.792	.462	3.322
Palp	.220	.120	.098	—	.462	.900

Spines on legs are considerably more conspicuous and much longer than in females. The curled hairs on the third tibiae apparently are arranged in two oblique rows of four and three, respectively. Additional trichobothria are also present but their exact distribution has not been determined. The second tibia has specialized spines; those seen in ventral view are represented in Figure 5. The first coxa has the ventral hook and the second femur has the corresponding groove and ridge.

Palp. Complicated; parts are small and generally inconspicuous but the clavis is clearly visible. Both patella and tibia are short; the latter is broad, angular, and very irregular in outline (Figs. 6-7). The femur has the chitinized tubercle as already stated.

Abdomen. This part of the body is badly crushed and unsuitable for study; apparently it is essentially like that of the female.

Color in alcohol. The color in general is similar to that of the female holotype but it is less conspicuous. The marginal stripes on the carapace of the female are merely indistinct grayish areas in the male allotype. The sternum is nearly surrounded by a dark gray margin with the greater part yellowish with small grayish areas. The legs are much as they appear in the female but the black dots at the bases of the spines are less conspicuous and the prolateral, grayish stripes on the first and second femora are absent in the male. Abdomen: there are numerous white, chalky flecks on the dorsum; there are two black dots in the middle line in the anterior half of the dorsum; the posterior half of the dorsum contains a dark, rectangular, fairly broad spot composed of a series of black marginal spots more or less connected by very narrow, black lines extending through a brownish area.

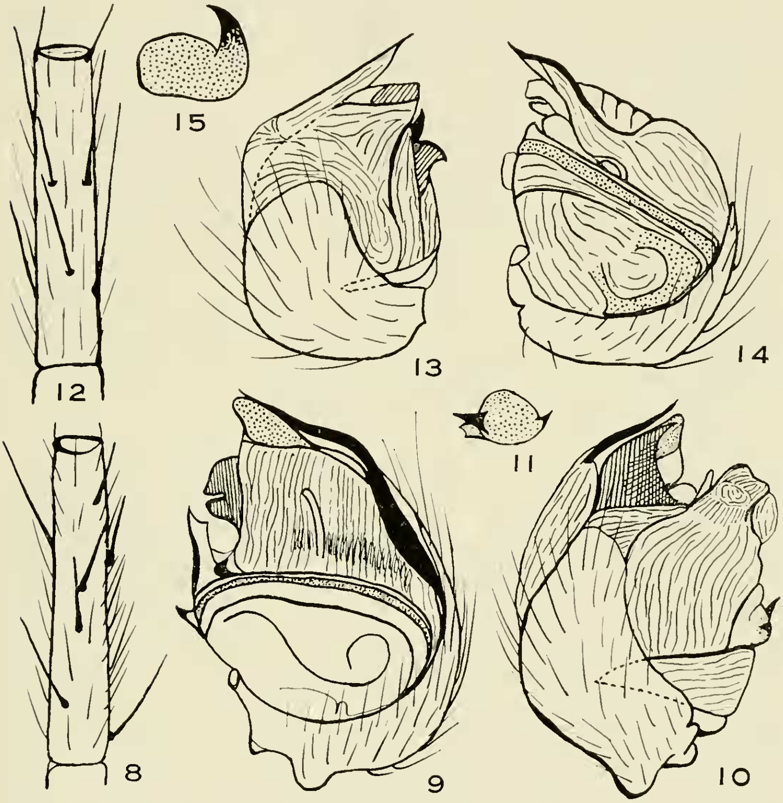
Type locality. The holotype female is from Mexico, Nuevo Leon, El Potosi, Cerro Potosi, June 13, 1938 (H. Hoogstraal). One paratype was taken with the holotype. Another in the collection is from the same general region, Sabinas Hidalgo, 1000 ft. elevation, June 13, 1940. Three females in the collection are from Honduras, Escuela Agr. Panam., 27 km. S. of Tegucigalpa, San Antonio del Oriente. Two males accompany the females. One was mature; it had undergone severe injury to its abdomen but was selected as the allotype; the other was immature. The Honduran specimens were collected by A. and M. Carr at 3800-4000 ft. elevation, November 17, 1945. Two other males in the collection are from Mexico: Nuevo Leon, Villa de Santiago, Hacienda Vista Hermosa, 2000 ft. elevation, July 19, 1940 (H. Hoogstraal). Both of these males have their tarsal bulbs so distended as to be useless for description.

MANGORA DISTINCTA sp. nov.

(Figures 8-11)

Male holotype. Total length 2.535 mm. Carapace 1.202 mm. long, .902 mm. wide opposite interval between second and third coxae where it is widest, .484 mm. tall and, therefore, about .54 as tall as wide; gently arched with tallest point nearly at level of greatest width; median fovea a rather deep, narrow, longitudinal groove.

Eyes. Eight in two rows as usual; LE on slightly raised tubercles; AME protrude prominently over clypeus. Viewed from above, anterior row strongly recurved, posterior row slightly so. Viewed from in front, anterior row slightly recurved, posterior row moderately procurved, all measured by centers. Central ocular quadrangle wider in front than behind in ratio of 19 : 16; slightly



External Anatomy of *Mangora*

Figures 8-11, *M. distincta*

Figures 12-15, *M. sufflava*

Fig. 8. Left second tibia to show ventral spines.

Figs. 9-10. Two views of the palpal tarsus.

Fig. 11. Tarsal clavis.

Fig. 12. Left second tibia to show ventral spines.

Figs. 13-14. Two views of the palpal tarsus.

Fig. 15. Tarsal clavis enlarged.

longer than wide in front. Ratio of eyes AME : ALE : PME : PLE = 6 : 5 : 6 : 5. AME separated from one another by their diameter, from ALE by slightly less than this distance. PME separated from one another by slightly more than their radius, from PLE by their diameter. LE separated only by a line. Height of clypeus about equal to the diameter of AME (surrounding pigment makes it difficult to obtain exact measurements of eyes and their relative positions).

Chelicerae. General features as usual in the genus. Unable to observe teeth along fang groove without injury to holotype.

Maxillae and *Lip.* Maxillae with a sharply pointed tooth near their bases; probably used in opposition to the chitinized tubercle on the palpal femur. In general, both structures appear to be typical of the genus.

Sternum. Scutiform; strongly convex; somewhat depressed in anterior portion; sternal suture quite procurved; widest between second coxae where it is nearly as wide as long; continued broadly between fourth coxae which are separated by 8/11 of their width.

Abdomen. Ovoid; quite typical of the genus; details regarded as unnoteworthy.

Color in alcohol. Legs and mouth parts generally yellowish; each chelicera has a small, irregular, grayish area in front near the base. The carapace is yellowish with a narrow central stripe from a little behind PME and extending two-thirds of the distance to the posterior border. The sternum is yellowish with a very irregular light grayish marginal area. Abdomen: yellowish with whitish flecks dorsally and dorsolaterally; in the posterior half of the dorsum there are three narrow brownish stripes; in the region of the spinnerets there are several black and white dots; on each lateral side there is a narrow oblique grayish stripe followed by an area of many small white flecks and finally a rounded irregularly grayish spot; the venter is generally yellowish but just in front of the genital groove there is an oval grayish spot and behind the genital groove there is an irregularly grayish, rounded spot containing a group of white flecks.

Type locality. The holotype is from Honduras, Escuela Agr. Panam., 27 km. S. of Tegucigalpa, San Antonio del Oriente, Nov. 17, 1945, 3800-4000 ft. elevation (A. and M. Carr). There are no paratypes and the female is unknown.

MANGORA SUFFLAVA sp. nov.

(Figures 12-15)

Male holotype. Total length 2.6 mm. Carapace 1.3 mm. long, .99 mm. wide opposite interval between second and third coxae where it is widest, .638 mm. tall at about the level of its greatest width and, therefore, about half as tall as wide; median fovea a narrow, well defined, longitudinal groove; considerably overlapped by anterior end of abdomen. Other features as usual in the genus.

Eyes. Eight in two rows as usual. Viewed from above, anterior row strongly recurved, posterior row moderately so. Viewed from in front, anterior row moderately recurved, posterior row moderately procurved, all measured by centers. Central ocular quadrangle wider in front than behind in ratio of 7 : 6; slightly longer than wide in front. Ratio of eyes AME : ALE : PME : PLE = 7.5 : 6 : 6.5 : 6. AME separated from one another by about their diameter, from ALE by about two-thirds of their diameter. PME separated from one another by about two-thirds of their diameter, from PLE by about 1.3 times their diameter. LE separated only by a broad line. Height of clypeus equal to about four-fifths of the diameter of AME.

Chelicerae, Maxillae, Lip and *Sternum.* All apparently typical of the genus.

Legs. 1243. Width of first patella at "knee" .200 mm., tibial index of first leg 13. Width of fourth patella at "knee" .162 mm., tibial index of fourth leg 14

(All measurements in mm.)

	Femora	Patellae	Tibiae	Metatarsi	Tarsi	Totals
1.	1.364	.506	.990	1.100	.649	4.609
2.	1.320	.484	.902	1.078	.627	4.411
3.	.792	.308	.506	.528	.418	2.552
4.	1.292	.418	.770	.880	.528	3.888
Palp	.286	.119	.119	—	.440	.964

All legs with well developed spines and hairs. Second tibia with modified spines; those seen in ventral view shown in Figure 12. The long, slender, branched hairs on the prolateral side of third tibia appear to be arranged in two oblique rows of three each. The first coxa bears the usual hook and the second femur has the corresponding prolateral, proximal groove and chitinized ridge. Tarsal claws appear to be as usual in the genus.

Palp. The patella has the usual long, slender, terminal, dorsal spine. Both patella and tibia are short. Important tarsal features shown in Figures 13-15. The clavis appears to be different from any other found in the collection. The tooth is probably present on the maxilla together with the chitinized tubercle on the palpal femur but neither can be clearly seen without danger of damage to the holotype.

Abdomen. 1.625 mm. long; 1.170 mm. wide near middle; ovoid. At the base are two long, slender, dorsal, spine-like bristles. Other features typical of the genus.

Color in alcohol. Carapace yellowish with a grayish median stripe extending from AME to middle third of steep posterior declivity; the center of the grayish stripe is a narrow, black line. The sternum is broadly grayish around the margin but yellowish in the center. The legs and mouth parts are yellowish with many variations in the depth of color. Abdomen: this part of the body has a rather unusual color pattern; dorsolaterally there is a fairly broad, white stripe on each side extending nearly the length of this part of the body; there is a large, median, grayish yellow spot in the anterior half of the dorsum containing a pair of small white dots in the posterior half with another pair of small white dots at its posterior border; the posterior half of the dorsum has a pair of dark gray stripes separated by a yellowish stripe; these stripes do not reach to the posterior end of the abdomen; the venter is yellowish with faint gray irregularities.

Type locality. The holotype male is from Boquete, Chiriqui, Panama, August, 1950. This specimen was overlooked among specimens belonging to different genera at the time of completion of my previous paper on *Mangora* (1954) and only recently found. There are no paratypes and the female is unknown.

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